

CLAIMS

What is claimed is:

- 1 1. A method, comprising:
2 using a helmet-mounted camera unit to capture images, the camera unit
3 having a single-chip image sensor;
4 transmitting, from the helmet-mounted camera unit to a remote station, a
5 signal representative of the captured images; and
6 transmitting a control signal from the remote station to the helmet-mounted
7 camera unit to control a parameter associated with the helmet-mounted camera unit.
- 1 2. The method of claim 1 wherein the signals are transmitted along a wireless
2 radio frequency communication link.
- 1 3. The method of claim 1, further comprising adjusting a field of view of the
2 helmet-mounted camera unit by using an adjusting unit attached to the helmet-
3 mounted camera unit to change a tilt of the helmet-mounted camera unit.
- 1 4. The method of claim 1 wherein the parameter associated with the helmet-
2 mounted camera unit comprises one of an exposure, gain, white balance, color
3 saturation, brightness, or hue.
- 1 5. A method, comprising:
2 providing a camera unit mountable on a helmet, the camera unit having a
3 single-chip image sensor;

4 providing the camera unit with circuitry to allow transmission of a signal
5 representative of captured images; and

6 providing the camera with circuitry to allow reception of control signals to
7 control parameters associated with the camera unit.

1 6. The method of claim 5 wherein the image sensor comprises a color
2 complementary metal oxide semiconductor (CMOS) image sensor having a
3 processing unit to allow processing of images.

1 7. The method of claim 6 wherein the processing unit includes components to
2 provide a National Television Standards Committee (NTSC), Phase Alternating Line
3 (PAL), or Systeme Electronique Couleur Avec Memoire (SECAM) video format
4 derived from the captured images.

1 8. The method of claim 6 wherein the processing unit includes components to
2 provide a digital data derived from the captured images.

1 9. The method of claim 5 wherein the helmet comprises a football helmet having
2 a face guard, the method further comprising:

3 mounting the camera unit to a substrate; and

4 affixing attaching units to the substrate, the attaching units being structured to
5 allow the substrate to be mounted to the face mask.

1 10. The method of claim 9, further comprising providing a threaded adjusting unit
2 attached to the substrate and movable to change a planar position of the substrate
3 to change a field of view of the camera unit.

1 11. An apparatus, comprising:
2 a camera unit mountable to a helmet, the camera unit having a single-chip
3 image sensor and including an attaching unit structured to allow the camera unit to
4 be attached to an existing structure of the helmet, the camera unit further including a
5 transmit unit to allow transmission of a signal representative of captured images and
6 a receive unit to receive control signals to control parameters associated with the
7 camera unit.

1 12. The apparatus of claim 11 wherein the camera unit further comprises:
2 an image sensor array to capture images; and
3 a processing unit coupled to the image sensor array to use the parameters to
4 process the images and to provide the signal representative of the captured images
5 to the transmit unit, wherein the processing unit is responsive to the control signals
6 change the parameters.

1 13. The apparatus of claim 12 wherein the camera unit further comprises a
2 control unit coupled to receive the control signals from the receive unit and coupled
3 to the processing unit to control operation of the processing unit based on the
4 control signals.

1 14. The apparatus of claim 11 wherein the helmet comprises a football helmet
2 and wherein the existing structure comprises a face mask, the camera unit further
3 comprising a substrate having the attaching unit affixed thereon, the attaching unit
4 including a clamping structure to allow the substrate to be mounted to the face
5 mask.

1 15. The apparatus of claim 11 wherein the camera unit further comprises an
2 adjusting unit attached to a substrate of the camera unit, the adjusting unit being
3 structured to allow change of a field of view of the camera unit by changing a planar
4 position of the substrate.

1 16. The apparatus of claim 11 wherein the image sensor comprises a color
2 complementary metal oxide semiconductor (CMOS) image sensor.

1 17. An apparatus, comprising:
2 a helmet; and
3 a camera unit mounted to the helmet, the camera unit having a single-chip
4 image sensor and including an attaching unit structured to allow the camera unit to
5 be attached to an existing structure of the helmet, the camera unit further including a
6 transmit unit to allow transmission of a signal representative of captured images and
7 a receive unit to allow receivable control signals to control parameters associated
8 with the camera unit.

1 18. The apparatus of claim 17 wherein the helmet comprises a football helmet
2 and wherein the existing structure comprises a face mask, the camera unit further
3 comprising a substrate having the attaching unit affixed thereon, the attaching unit
4 including a clamping structure to allow the substrate to be mounted to the face
5 mask.

1 19. The apparatus of claim 17 wherein the camera unit further comprises an
2 adjusting unit attached to a substrate of the camera unit, the adjusting unit being

3 structured to allow change of a field of view of the camera unit by changing a planar
4 position of the substrate.

1 20. The apparatus of claim 17, further comprising an electronic connection
2 between the camera unit and a face mask of the helmet to allow the face mask to be
3 useable as an antenna.

1 21. The apparatus of claim 17, further comprising an antenna integrally formed in
2 the helmet and connected to the transmit and receive units of the camera unit.

1 22. The apparatus of claim 17 wherein the camera unit further comprises an
2 elongated adjusting unit having threads and attached to a substrate of the camera
3 unit, the substrate including a fixture having a threaded opening to correspondingly
4 receive the threads of the adjusting unit, the adjusting unit being rotatable to allow
5 movement of the adjusting unit along the threads of the fixture to change a planar
6 position of the substrate.

1 23. A system, comprising:
2 a helmet;
3 a camera unit mounted to the helmet, the camera unit having a single-chip
4 image sensor and including an attaching unit structured to allow the camera unit to
5 be attached to an existing structure of the helmet, the camera unit further including a
6 transmit unit to allow transmission of a signal representative of captured images and
7 a receive unit to receive control signals to control parameters associated with the
8 camera unit; and

9 a remote unit to receive the signal representative of captured images from the
10 transmit unit and to transmit the control signals to the receive unit to externally
11 control the camera unit.

1 24. The system of claim 23 wherein the camera unit further comprises:

2 an image sensor array to capture images; and

3 a processing unit coupled to the image sensor array to use the parameters to
4 process the images and to provide the signal representative of the captured images
5 to the transmit unit, wherein the processing unit is responsive to the control signals
6 change the parameters.

1 25. The system of claim 23 wherein the camera unit further comprises a control
2 unit coupled to receive the control signals from the receive unit and coupled to the
3 processing unit to control operation of the processing unit based on the control
4 signals.

1 26. The system of claim 23 wherein the signal representative of captured images
2 and the control signals comprise radio frequency signals.

1 27. The system of claim 23 wherein the camera unit further comprises an
2 adjusting unit attached to a substrate of the camera unit, the adjusting unit being
3 structured to allow change a field of view of the camera unit by changing a planar
4 position of the substrate.

1 28. The system of claim 23 wherein the helmet comprises a football helmet and
2 wherein the existing structure comprises a face mask, the camera unit further

3 comprising a substrate having the attaching unit affixed thereon, the attaching unit
4 including a clamping structure to allow the substrate to be mounted to the face
5 mask.

1 29. An apparatus, comprising:

2 a camera unit attachable to a headgear, the camera unit having a single-chip
3 image sensor and including an attachment component structured to allow the
4 camera unit to be attached to the headgear.

1 30. The apparatus of claim 29 wherein the headgear comprises a helmet.

1 31. The apparatus of claim 29 wherein at least a portion of the camera unit
2 including the attachment component is integral to the headgear.

1 32. The apparatus of claim 29 wherein the image sensor comprises a color
2 complementary metal oxide semiconductor (CMOS) image sensor.

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